



Joint Fuze Technology Program (JFTP) NDIA Fuze Conference

30 July 2014

Joint Fuze Technology Panel

Lawrence Fan (Navy) - Presenter

Charles Kelly (OUSD(AT&L)/S&TS/LW&M)

Timothy Tobik (Air Force)

Philip Gorman (Army)



Outline

- **Background and BLUF**
- **JFTP Process**
- **Project Highlights**
- **Key JFTP Events**



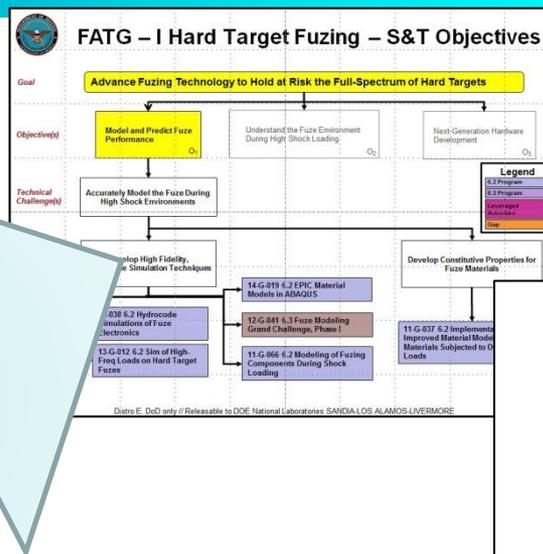
Bottom Line Up Front

- This program addresses, from a Joint Service perspective, advanced Fuze technology development associated with improving the lethality, reliability, and survivability of munitions and weapon systems.
- Addressing High priority Service weapon fuzing needs & gaps:
 - Cluster fuzing reliability, hard target penetration, cannon proximity fuzing
 - Leveraging DoD Fuze IPT Initiatives and coordination with NAC (National Armaments Consortium)
 - Industry engagement – Technology exchanges, components for evaluation, application of M&S tools
 - Fuze Technology ties to weapon development and acquisition plans – Weapon roadmaps, PM/PEO endorsements
- FY14 JFTP budget
 - 6.2 stabilized at ~\$6.0M per year

Numerous JFTP projects completing and transitioning to Services and Industry



JFTP Service Requirements Flow-Down



Air Force Weapon Gaps

Army Weapon Gaps

Navy Weapon Gaps

- JFTP Project Evaluation Criteria**
1. Technology Innovation, Feasibility and Maturity
 2. Technical Approach
 3. Addresses FATG Goals & Objectives
 4. Success Metrics Deliverables/Milestones
 5. Transition & Tech Transfer
 6. Leveraging/Cost
 7. Cost Realism
 8. Experience & Capability
 9. Jointness & Address Services' Needs

- Leveraging and Cost Sharing
- Meeting Joint Needs/Gaps
- Transition Strength

DOTC Annual Technology Plan - FY11 (7)

UNCLASSIFIED

DEPARTMENT OF DEFENSE
ORDNANCE
TECHNOLOGY CONSORTIUM

ANNUAL TECHNOLOGY PLAN - FY15

DONALD A. GESS, Jr.
Director, DOTC
www.aac-dotc.org
Annual.aac-dotc.org

March 19, 2014

Distribution C: Distribution authorized to U.S. Government agencies and their contractors. Operational Use, February 2014. Other requests for this document shall be referred to the DOTC Program Director at (973) 724-2044.

UNCLASSIFIED

Joint Fuze Technology Program Management Structure



**OUSD(AT&L)/
PSA/LW&M**



**Technical Advisory
Committee**



JOINT FUZE TECH PANEL OVERSIGHT COMMITTEE

PROGRAM MANAGERS (OSD, Service)

Charles Kelly, Lawrence Fan, Phil Gorman, Tim Tobik

JFTP Support Staff:

Technical: Danny Hayles,
Clifton Chu

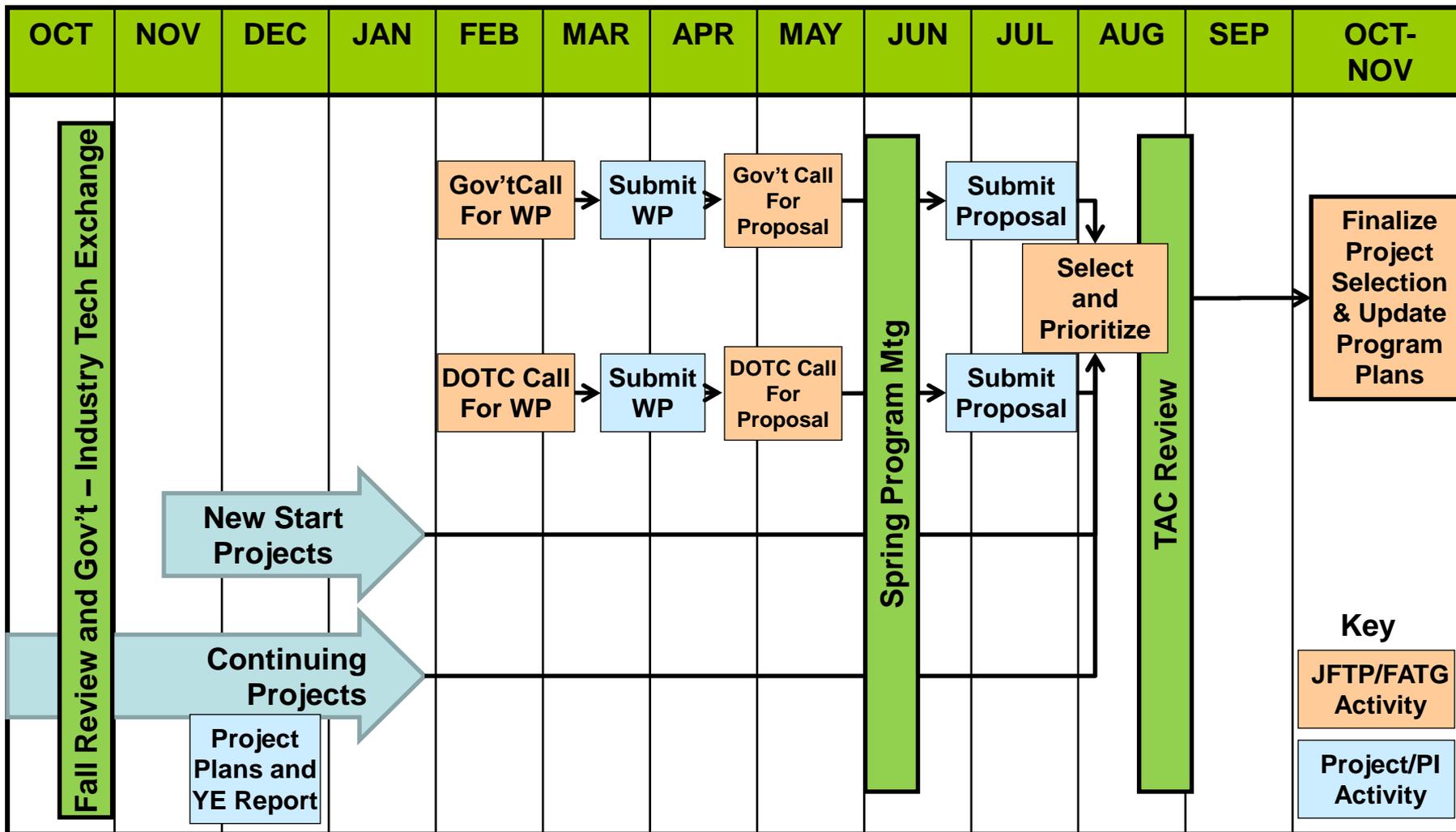
Financial: Jamie Oswald

FUZE AREA TECHNOLOGY GROUPS

FATGI – Hard Target / Survivable Fuzing	FATGII – Tailorable Effects & Initiation	FATGIII – High Reliability Fuzing	FATGIV – Enabling Fuze Technologies
Chair: John Kandell (Navy)	Chair Gene Henderson (Army)	Chair John Hendershot (Navy)	Chair Chris Janow (Army)
Co-Chairs Shannon Haataja (Army) Howard White (AF)	Co-Chairs Daniel Lanterman (Navy) George Jolly (AF)	Co-Chairs Kelly Oliver (AF) Tom Crowley (Army)	Co-Chairs Matt Bridge (AF) Bruce Hornberger (Navy)
SME Participants	SME Participants	SME Participants	SME Participants



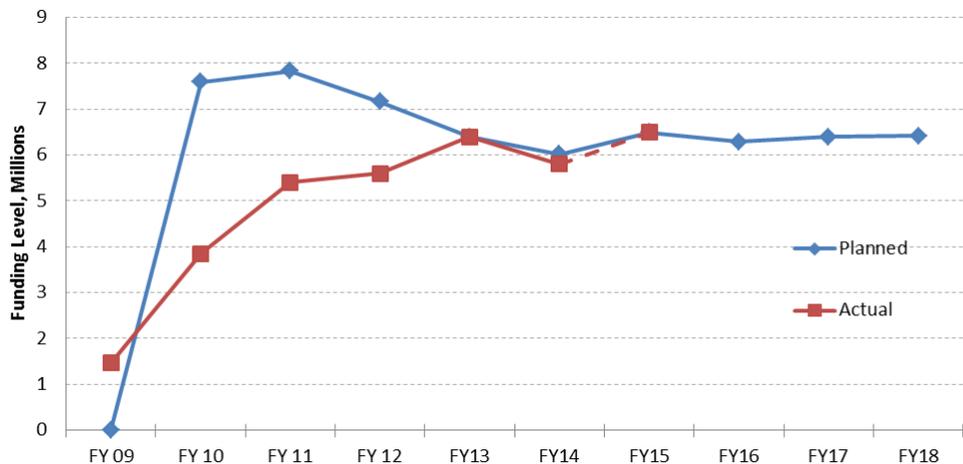
JFTP Annual Cycle



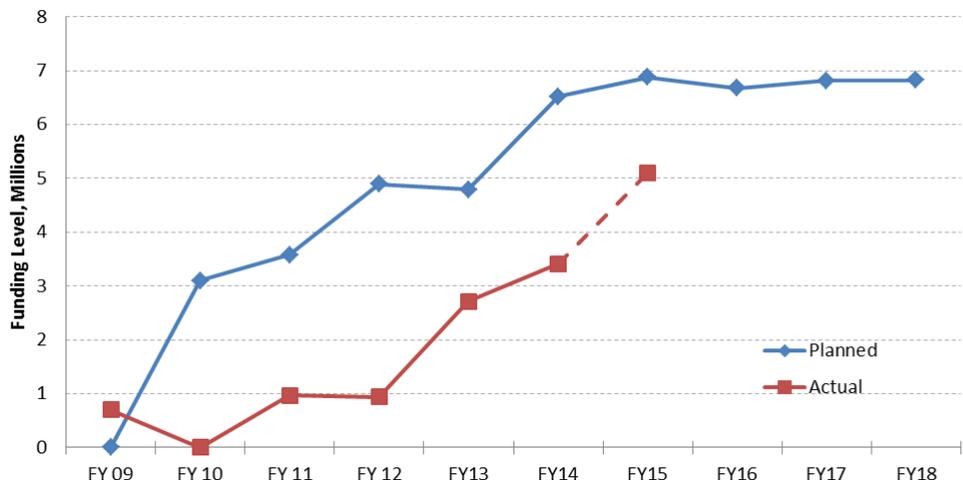


Budget History and Projections

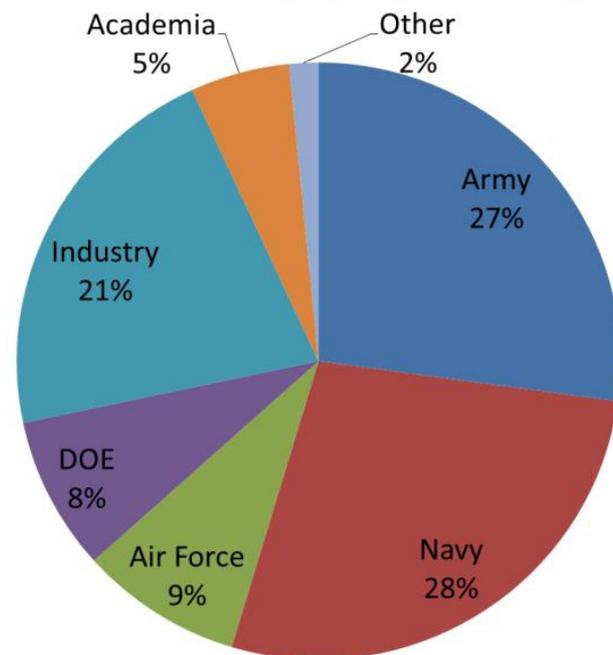
6.2 Budget



6.3 Budget



FY14 Execution by Service or Activity





Fuze Area Technology Groups

FATG I – Hard Target / Survivable Fuzing

1.1 Improved M&S

1.2 Fuze Environment

1.3 Next Generation Fuzing Hardware

FATG II – Tailorable Effects

2.1 In-Line TE Fuzing

2.2 Out-of-Line TE Fuzing

2.3 "Smart" Fuzing for TE

2.4 Advanced Fuze Initiation Technologies

FATG III – High Reliability Fuzing

3.1 Fuzing Architecture

3.2 Fuzing Components

3.3 UXO reduction features

FATG IV – Enabling Fuze Technologies

4.1 Common / Modular Fuze Architecture

4.2 Components Technologies

4.3 Proximity Sensors

4.4 Weapons Effects & Damage Assessment

4.5 Fuzing Power Sources



JFTP Project Highlights (FATG I)

JFTP Project 12-G-041, Fuze Modeling Grand Challenge (Session VA)

- The JFTP Fuze Modeling Grand Challenge is in response to an Air Force identified need for “a fundamental understanding of our predictive capabilities”.
- Provides a baseline comparison of computational modeling tools in predicting fuze response using common test platform

JFTP Project 10-095, Hardened Miniature Fuze Technology (HMFT)

- The JFTP Hardened Miniature Fuze Technology project, which capitalized on previous AFRL investments, is establishing new benchmarks for fuze survivability in the ordnance package for AFRL’s High Velocity Penetrating Weapon...its #1 Flagship Capability Program



JFTP Project Highlights (FATG II)

JFTP Project 10-120, Tailorable Effects Explosive Trains

- Systematic scientific based methodology to characterize fuzing/weapon system explosive train design influences.
- Technique leveraged by MOP and the Army's Tailorable Effects Detonating and Deflagrating Warhead

JFTP Project 10-027, Low-Voltage Command Arm System for Distributed Fuzing Systems (Session IVB)

- Received approval of serial communication based design architectures from Fuze Engineering Standards Working Group (FESWG) in February 2014



JFTP Project Highlights (FATG III)

JFTP Project 10-119, A New Methodology for Explosive Transfer Reliability

- Paradigm shift in characterizing and quantifying explosive transfer reliability utilizing physics based methodologies.
- Instrumental in MOP and Patriot fuze/detonator failure analyses and design of fuzing explosive train concept for AFRL's High Velocity Penetrating Weapon

JFTP Project 14-G-014: 6.3 Non-Disruptive Umbilical Solutions for High Reliability DPICM Replacement (HRDR) (Session VB)

- Developing the electrical signal distribution in a weapon system with large numbers of submunitions with minimal disruption to the dispense event
- Collaborates with and leverages ONR-USMC S&T efforts to provide high reliability compliant cluster munition fuze.



JFTP Project Highlights (FATG IV)

JFTP Project 10-010, MEMS Retard & Impact Sensors (Session VA)

- Applied MEMS technologies to improve retard and impact sensor precision, reliability, producibility, and cost effectiveness as drop-in replacements for sensors in the FMU-139, FMU-143, and FMU-152 bomb fuzes.

JFTP Project 10-042, Next Generation Proximity Sensors

- Developing a Joint solution for a Next Generation Proximity Sensor (NGPS) that is small, cost-effective, countermeasure-resistant and has broad DoD munition applicability
- Industry partnering process started with NAC to participate at major program reviews (PDR/CDR/TRR)

JFTP Project 14-G-023 6.2 Understanding and Characterizing F-PLD Memory Failure Modes In Fuzes (Session IVA)

- Provide knowledge and issue guidance to fuze and weapon community about Field Programmable Logic Devices for broad, general, standardized, safe and effective use of F-PLDs in fuzing in weapons



JFTP Key Dates

- Preliminary FY15 proposal selection - September 2014
- JFTP Fall Review and Fuze IPT meeting - 28-20 October 2014
- FY16 Call for White Papers - February 2015
- FY16 Call for Proposals - May 2015
- JFTP Spring Review - June 2015
- FY16 Proposals briefed



Questions?